

Patent Claims

1. Convertible top for a convertible vehicle (2) having a rear-end roof segment (6), a front-end roof segment (8) and at least one central roof segment (7), with the roof segments (6, 7, 8) having opposing outer roof frame profiles (9, 10, 11) arranged symmetrically with a vehicle longitudinal axis (33) which can be folded up in accordion fashion via a convertible top mechanism,
characterized in that
the roof segments (9, 10, 11) are arranged essentially one above the other in a folded position with the convertible top (1) down, with the curvature in the same direction and the outer roof frame profiles (10) of the at least one central roof segment (7) shifted in the direction of the center of the vehicle and rotated about an axis at least approximately parallel to the vehicle longitudinal axis (33) in comparison to a position in which the convertible top (1) is put up by means of a guide mechanism (21, 21').
2. Convertible top in accordance with Claim 1,
characterized in that
the roof segments (9, 10, 11) are situated one above the other in the folded position such that their curvature faces away from a vehicle bottom (46).
3. Convertible top in accordance with Claim 1,
characterized in that

the roof segments are situated one above the other in the folded position such that their curvature is facing a vehicle bottom.

4. Convertible top in accordance with any one of Claims 1 through 3,

characterized in that an outer roof frame profile (10) of the at least one central roof segment (7) in the folded position is rotated by at least approximately 180° in comparison with its position when the top (1) is up.

5. Convertible top in accordance with any one of Claims 1 through 4,

characterized in that the guide mechanism (21) of the outer roof frame profile (10) of the at least one central roof segment (7) has a guide rod (29) coupled to the convertible top mechanism, the outer roof frame profile (10) being guided axially displaceably on the guide rod so that it is rotated about its longitudinal axis in the case of an axial movement with respect to the guide rod (29).

6. Convertible top in accordance with Claim 5,

characterized in that the outer roof frame profile (10) engages with a sliding block (31) in a spiral groove (30) created in the guide rod (29), with the sliding block (31) being coupled to the kinematics of the convertible top mechanism via a coupling element (32).

7. Convertible top in accordance with Claim 6,

characterized in that

the coupling element (32) is connected first to the sliding block (31) in an axially fixed and rotationally movable manner and second is connected like a hinge to an articulated element (36) of an articulated chain (16) of the convertible top mechanism.

8. Convertible top in accordance with any one of Claims 1 through 4,

characterized in that the guide mechanism (21') of the outer roof frame profile (10) of the at least one central roof segment (7) has a control rod (47) coupled to the convertible top mechanism and pivotable about a pivot axis (A4) running parallel to the transverse axis of the vehicle and to which the outer roof frame profile (10) is connected in an articulated manner by a lever arrangement (49), with the lever arrangement (49) being pivotable about tilted axes (A1, A2, A3) which run at an angle to the pivot axis (A4) of the control rod (47) such that the outer roof frame profile (10) is shifted in the direction of the center of the vehicle and is rotated with respect to an axis that is parallel to the longitudinal axis (33) of the vehicle when the control rod (47) is pivoted.

9. Convertible top in accordance with Claim 8,

characterized in that the control rod (47) is connected in an articulated joint to the front roof segment (8), in particular to its outer roof frame profile (11) arranged on the respective side.

10. Convertible top in accordance with Claim 8 or 9,

characterized in that a first pivot lever (50) of the lever arrangement (49) connects the outer roof frame profile (10) of the central roof segment (7) to the control rod (47) in an articulated joint with the first pivot lever (50) being pivotable about a first tilted axis (A1) with respect to the outer roof frame profile (10) of the central roof segment (7) and being pivotable about a second tilted axis (A2) with respect to the control rod (47).

11. Convertible top in accordance with Claim 10, characterized in that the articulated connection of the first pivot lever (50) to the control rod (47) is arranged around the second tilted axis (A2) in an end area of the control rod (47) facing away from the connection of the control rod (47) to the front roof segment (6).
12. Convertible top in accordance with Claim 10 or 11, characterized in that the articulated connection of the first pivot lever (50) to the outer roof frame profile (10) is arranged around the first tilted axis (A1) in a rear-end area of the outer roof frame profile (10) in the up position of the convertible top (1).
13. Convertible top in accordance with any one of Claims 8 through 12, characterized in that a second pivot lever (51) of the lever arrangement (49) connects in an articulated joint the outer roof frame profile (10) of the central roof segment (7) to the front roof segment (8), in particular to its roof frame profile

(11) arranged on the respective vehicle side, with the second pivot lever (51) being pivotable about a pivot point (D1) with respect to the outer roof frame profile (10) of the central roof segment (7) and being pivotable about a third tilted axis (A3) with respect to the front roof segment (8).

14. Convertible top in accordance with Claim 13, characterized in that the connection between the second pivot lever (51) and the outer roof frame profile (10) of the central roof segment (7) is designed at the pivot point (D1) by means of a ball joint (52).
15. Convertible top in accordance with Claim 13 or 14, characterized in that the connection of the second pivot lever (51) on the front roof segment (8) is arranged in a rear-end area of the outer roof frame profile (11) of the front roof segment (8).
16. Convertible top in accordance with any one of Claims 13 through 15, characterized in that the connection of the second pivot lever (51) to the outer roof frame profile (10) of the central roof segment (7) is arranged in an area of the outer roof frame profile (10) of the central roof segment (7) that is at the front when the convertible top (1) is in the up position.
17. Convertible top in accordance with any one of Claims 5 through 16, characterized in that

the guide rod (29) or the control rod (47) is connected to the front roof segment (8) of the convertible top mechanism in an articulated joint at one end and to the articulated chain (16) of the convertible top mechanism at the other end.

18. Convertible top in accordance with any one of Claims 1 through 17,
characterized in that
at least the rear-end roof segment (6) is designed with a flexible roof membrane (3) which is accommodated between the outer roof frame profiles (9) facing the rear-end roof segment (6) and a dimensionally stable rear window (12).
19. Convertible top in accordance with Claim 18,
characterized in that
the rear window (12) and the outer roof frame profiles (9) of the rear-end roof segment (6) are converted into or out of the folded position in a movement in the same direction.
20. Convertible top in accordance with any one of Claims 18 or 19,
characterized in that
the rear window (12) and the outer roof frame profiles (9) of the rear-end roof segment (6) are arranged essentially parallel to one another during their movement into or out of the folded position.
21. Convertible top in accordance with any one of Claims 1 through 20,
characterized in that
an outer roof frame profile (9) of the rear-end roof segment (6) is connected to a 4-bar linkage mechanism (15)

that is in turn connected in an articulated manner to two pivot points (13, 14) fixedly provided on the body and is also connected to an articulated chain (16), which transmits the movement to the other roof segments (7, 8).

22. Convertible top in accordance with Claim 21, characterized in that the 4-bar linkage mechanism (15) is designed with a first angled lever (17) and a second angled lever (18), each of which is hinge-connected in an articulated joint to a pivot point (13, 14) fixedly provided on the body and to the outer roof frame profile (9).
23. Convertible top in accordance with Claim 22, characterized in that the pivot point (13) of the first lever (17) is fixedly provided on the body and is arranged so it is offset higher and toward the front in comparison with the pivot point (14) of the second lever (18) fixedly provided on the body.
24. Convertible top in accordance with any one of Claims 22 or 23, characterized in that a joint (20) is provided between the first lever (18) and the outer roof frame profile (9) in an area at the front in the up position of the convertible top (1) and a joint (20) is provided between the second lever (18) and the outer roof frame profile (9) in an area of the outer roof frame profile (9) at the rear in the up position of the top (1).
25. Convertible top in accordance with any one of Claims 22 through 24, characterized in that the first lever (17) is formed at least approximately in a

U shape and the second lever (18) is designed at least approximately in an L shape, with the connection to the outer roof frame profile (9) and to the pivot points (13, 14) fixedly provided on the body being arranged in the area of a leg end of the lever (17, 18).

26. Convertible top in accordance with any one of Claims 22 through 25,

characterized in that preferably the first lever (17) is connected to a drive (22) of the convertible top (1).

27. Convertible top in accordance with any one of Claims 23 through 26,

characterized in that the rear window (12) is connected to the 4-bar linkage mechanism (15) by an articulated strap (25) and is connected to the outer roof frame profile (9) via the flexible roof membrane (3).

28. Convertible top in accordance with any one of Claims 22 through 27,

characterized in that a main convertible top tension bar (4) is hinge-connected to the second lever (18).

29. Convertible top in accordance with any one or more of the preceding claims,

characterized in that the articulated chain (16) has a first articulated bracket (37) and a second articulated bracket (40) for the transfer of movement, these articulated brackets opening and/or closing in opposition to one another and being rotationally

connected to one another via a joint (43) arranged on the outer roof frame profile (9) of the rear roof segment (6), with the first articulated bracket (37) being hinge-connected to the first lever (17) of the 4-bar linkage mechanism (15) and the second articulated bracket (40) being hinge-connected to the guide mechanism (21, 21') of the outer roof frame profile (10) of the central roof segment (7).

30 Convertible top in accordance with any one or more of the preceding claims,

characterized in that the outer roof frame profile (11) of the front roof segment (7) is preferably hinge-connected on the rear end of the connection of the guide mechanism (21, 21') for the outer roof frame profile (10) of the central roof segment (7) with a rod (44) leading to a front area of the outer roof frame profile (6) of the rear-end roof segment (9).